

REMARKS

Claims 1-30 are currently pending. Claims 9 and 13 have been amended to correct certain formal deficiencies. No new matter was added. Applicant respectfully requests reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

Reissue Application

The Office Action alleges that the reissue oath/declaration filed with this application is defective “because it fails to identify at least one error which is relied upon to support the reissue application.” However a correspondence dated November 4, 2004 and entitled COMBINED DECLARATION AND POWER OF ATTORNEY IN REISSUE APPLICATION, declares that

I believe the ‘419 patent, which matured from application Serial No. 09/884,229, filed on June 19, 2001, to be wholly or partly inoperative or invalid by reason of my claiming less than I had a right to claim in the patent.

This declaration was properly signed by attorney Mark Lappin for inventor Mark Dinsmore pursuant to a petition under rule 37 CFR 1.47(b). This petition was granted in a correspondence from the PTO mailed July 15, 2005 and signed by John J. Gillon, Senior Attorney, Office of Petitions. Applicants note that the above declaration conforms with the language suggested by MPEP § 1414, item 3, as excerpted in the Office Action. Accordingly, Applications request reconsideration and withdrawal of the finding that the reissue application is defective as failing to identify at least one error.

Claim Objections

Claims 9 and 13 are objected to based on informalities. Claims 9 and 13 have been amended to obviate the antecedent basis issues raised in the Office Action. Accordingly, Applicants request reconsideration and withdrawal of the objection to claims 9 and 13.

35 USC §103 Rejections

Claims 1-30 have been rejected under 35 USC § 103(a) as being unpatentable over Oettinger et al. U.S. Patent No. 5,428,658 (henceforth “Oettinger”) in view of Mori et al. U.S. Patent No. 4,878,866 (henceforth “Mori”). Applicants traverse.

To establish a *prima facie* case of obviousness, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings, a reasonable expectation of success, and the prior art reference (or references when combined) must teach or suggest all the claim limitations. (MPEP § 2142.) Initially, Applicants do not concede that a person skilled in the art would have been motivated to combine the references as proposed. However, even if proper, the combination would fail to teach each and every limitation of the rejected claims.

Independent claim 1 recites:

... [a] thermionic cathode [which] comprises a spiral-shaped conductive element; ...a source of optical radiation; and... [an] optical delivery structure ... adapted for directing a beam of said transmitted optical radiation upon a surface of said thermionic cathode; and wherein said beam of optical radiation has a power level sufficient to heat at least a portion of said surface to an electron emitting temperature so as to cause thermionic emission of electrons from said surface.

Independent claims 21, 29, and 30 include substantially similar limitations.

Oettinger fails to disclose, teach or suggest directing a beam of optical radiation to impinge on the surface of a thermionic cathode with sufficient power level to heat at least a portion of the surface to a sufficiently high temperature to cause electron emission. To the contrary, Oettinger teaches that use of either a **current-driven** thermionic cathode or a **photocathode**. (Oettinger, column 9 lines 5-8). Oettinger teaches that in a current-driven thermionic cathode, an element is **resistively heated with a current** to provide a sufficiently high temperature to provide thermionic electron emission. (Oettinger, column 12, lines 7-18.)

Oettinger further teaches that a photocathode is a **non-thermionic** cathode suitable for illumination with a laser or LED such that electrons are produced by “photoemission” (Oettinger, column 12 lines 19-23.) As noted in Applicants’ specification, such photocathodes operate to produce electrons by way of the quantum photoelectric effect and not through thermionic emission caused by heating. (Applicants’ specification, column 2, lines 29-53). To the contrary, typical photocathodes operate at temperatures several thousand degrees centigrade less than those required for thermionic cathodes. (Id.) Applicants can find no teaching or suggestion in Oettinger to use optical radiation to heat a thermionic cathode to sufficient temperature for thermionic electron emission, as required by Applicants’ claims.

Mori does not cure this deficiency. Mori is directed to spiral shaped **current driven** thermionic cathodes. Heating is provided by “directly feeding electric current.” (Column 6, lines 51-53). Again, Applicants can find no teaching or suggestion to use optical radiation to heat a thermionic cathode to sufficient temperature for thermionic electron emission, as required by Applicants’ claims.

In light of the above, applicants submit that the proposed combination fails to disclose, teach or suggest each and every element of independent claims 1, 21, 22, 29, and 30. Claims 2-20 and 23-28 depend directly or indirectly from independent claims 1 or 21, and therefore patentably distinguish the proposed combination for at least the same reasons. Accordingly, applicants request reconsideration and withdrawal of the rejection of claims 1-30 under 35 USC §103(a).

Conclusion

Applicant believes that there is no longer any proper basis for the rejections under 35 USC 1039a) or as being based on a defective reissue declaration. Applicant therefore submits that present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check or credit card payment form being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

Date 11 Dec 2007

By  _____

FOLEY & LARDNER LLP
111 Huntington Avenue
Boston, Massachusetts 02199
Telephone: (617) 342-4049
Facsimile: (617) 342-4001

Mark G. Lappin
Attorney for Applicant
Registration No. 26,618